

BEDFORD NAVAL WEAPONS INDUSTRIAL RESERVE PLANT

BEDFORD, MASSACHUSETTS

Engineering Field Division/Activity: NORTHDIV
Major Claimant: COMNAVSEASYSOM
Size: 46 Acres
Funding to Date: \$7,424,000
Estimated Funding to Complete: \$36,630,000

Base Mission: Government-Owned Contractor-Operated (GOCO) facility whose mission is to design, fabricate, and test prototype weapons equipment such as missile guidance and control systems

Contaminants: Incinerator ash, POLs, BTEX, volatile organic compounds, solvents, paint, acids, industrial wastes, photographic wastes

Number of Sites:		Relative Risk Ranking of Sites:	
CERCLA:	4	High:	3
RCRA Corrective Action:	0	Medium:	1
RCRA UST:	0	Low:	0
Total Sites:	4	Total Sites:	4



NPL

EXECUTIVE SUMMARY

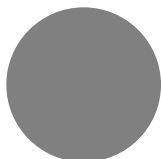
The Bedford Naval Weapons Industrial Reserve Plant (NWIRP) is located in the town of Bedford in Middlesex County, Massachusetts. Bedford is about 25 miles west of Boston, Massachusetts. Bedford NWIRP is a Government-Owned Contractor-Operated (GOCO) facility whose mission is to design, fabricate, and test prototype weapons equipment such as missile guidance and control systems. Research is conducted in two main structures: the Components Laboratory and the Flight Test Facility. There are other auxiliary buildings and an incinerator pad that are either metal-sided or reinforced concrete. Also on site is an antenna range and a warehouse. Operations include fabrication, spray painting, welding, machining, photographic work, and flight testing. Four sites have been identified here, and all four are being handled under CERCLA. One is an incinerator ash disposal area, with soils contaminated with ash and heavy metals. A Components Laboratory fuel oil tank has soils contaminated with POLs. The Northwestern Groundwater Plume has groundwater contaminated with a plume of Volatile Organic Compounds (VOCs). A fuel pump area has groundwater contaminated with gasoline. Current operations include pollution prevention technologies to prevent further contamination.

Bedford NWIRP is surrounded by Elm Brook and a wetland area to the north, a residential area and additional wetlands to the east and northeast, Raytheon Missile Systems Division to the west, and Hanscom Field to the south. Hanscom Field was formerly Hanscom Air Force Base and is currently operated by the Massachusetts Port Authority and the Air Force. NWIRP lies in the drainage basin of the Shawsheen River. The surrounding terrain is swampy and marshy. While the Shawsheen River is not used as a source of agricultural water, the town of Burlington uses the Shawsheen indirectly as a source of potable water. The Shawsheen is used for recreational fishing and swimming. Contaminant migration pathways associated with Bedford NWIRP are groundwater and surface water. Migration of a VOC plume to the municipal water supply is of major concern to the community.

A Technical Review Committee (TRC) was established in FY89 and converted to a Restoration Advisory Board (RAB) in FY94. A Community Relations Plan (CRP) was completed in February 1989 and updated in May 1992. Another update will be done in FY96. An Information Repository was established at the Bedford Public Library in FY89. Copies of the Administrative Record documents are maintained at the Information Repository.

All four sites at Bedford NWIRP are undergoing the Remedial Investigation/Feasibility Study (RI/FS) study phase which is expected to be completed in FY96. Sites 1 and 2 are likely to have No Further Action (NFA) Records of Decision (RODs) at the end of the Study Phase. Both EPA and the Massachusetts Department of Environmental Protection are considering NFAs. Construction of Remedial Action (RA) for Site 3 (a pump and treat system) is underway. Short Term Remediation Measure (STRM) construction awarded August 1995; construction began November 1995. Planned completion of construction is September 1996. This Short Term Measure (STM) will prevent migration of the Volatile Organic Compound (VOC) plume into the municipal water supply. Also, an innovative contracting vehicle was used to expedite construction.

Current Status Of Sites



■ Studies Underway	4
■ Cleanups Underway	0
□ Response Complete	0
TOTALS	4

BEDFORD NWIRP RELEVANT ISSUES

ENVIRONMENTAL RISK



HYDROGEOLOGY - Bedford NWIRP rests on Hartwell's Hill, a diorite knob that rises about 70 feet above the surrounding flat swamplands. Hartwell's Hill is capped by glacial till that varies in thickness from 10 to 40 feet. Groundwater migration is influenced primarily by topography; precipitation that falls on the hill slowly penetrates the poorly drained soils, and then migrates radially off the hill toward the surrounding marshy areas. Bedford NWIRP lies in the drainage basin of the Shawsheen River. No surface runoff from NWIRP reaches the river because of the extensive surrounding swampy area. Groundwater under NWIRP Bedford is not used as a drinking water source and groundwater migration primarily discharges to the Shawsheen River via Elm Brook which is to the north of the facility. Groundwater is not used for agricultural, potable, or industrial purposes between Bedford NWIRP and the discharge at Shawsheen River; residences in the area are served by public water. There are no human receptors along this pathway. Private wells are not used for drinking water.

The NWIRP is a densely developed area, primarily paved, with few natural areas. Surface water runoff and storm sewer discharge are to swampy areas to the west, north and east. The water in Elm Brook is not used as a source of potable or agricultural water. The Shawsheen River is not used as a source of agricultural water, although the town of Burlington uses the Shawsheen as a source of potable water after it has been pumped into the Mill Pond Reservoir. Water from the reservoir is physically and chemically treated before being used. The Shawsheen River meets Massachusetts Department of Environmental Quality Engineering water quality standards for a Class B (fishable/swimmable) stream. Vertical contaminant migration is slow to nonexistent, as a result of the geology of Hartwell's Hill. Contaminant migration is further limited by the nature of the poorly drained soils.



NATURAL RESOURCES - Possible receptors of any contaminants that could migrate from Bedford NWIRP include waterfowl, aquatic insects, frogs, salamanders, crayfish, turtles, snakes, leeches, and bacteria that inhabit Elm Brook and the swampy areas north and east of Bedford NWIRP. Other possible receptors include the fish in the Shawsheen River. Although no rare, threatened or endangered species have been sighted on the facility, there are such species in nearby areas that could be affected by migration of contaminants.



RISK - Draft Baseline Human Health and Ecological Risk Assessment Work Plans have been submitted to EPA, with completion of the assessments under final review.

The DOD Relative Risk Ranking system ranked Sites 1, 3, and 4 as high risk and Site 2 as medium risk. Site 1 (Incinerator Ash Area), contains film silver and paint wastes disposed from 1954-1973 that could potentially contaminate groundwater. Site 3 (Northwestern Groundwater Plume), has VOC contamination affecting drinking water supplies or environmentally sensitive areas. A Short Term Measure (STM) is under construction to prevent migration of the VOC plume into the municipal water supply using a pump and treat system. Site 4 (BTEX Fuel Pump Area), has contaminated groundwater due to a release of gasoline from an Underground Storage Tank (UST).

The Agency for Toxic Substances and Disease Registry (ATSDR) has completed a Public Health Assessment. All sites were given a low priority.

REGULATORY ISSUES



NATIONAL PRIORITIES LIST - Bedford NWIRP was proposed for the National Priorities List (NPL) in June 1993 with a Hazard Ranking System (HRS) score of 50.00. NWIRP was placed on the NPL in May 1994. At Site 3 (Northwestern Groundwater Plume), groundwater is contaminated with a plume of VOCs detected at concentrations above drinking water standards. This plume was the primary reason for placement on the NPL.



LEGAL AGREEMENTS - A Federal Facility Agreement will be negotiated with the EPA and the State of Massachusetts in FY97.



PARTNERING - Bedford NWIRP maintains an informal partnering relationship with the Massachusetts Department of Environmental Protection and EPA. Meetings are held bi-monthly, and conference calls take place bi-weekly. Partnering ensures that regulatory impediments to achieving cleanup are reduced.

COMMUNITY INVOLVEMENT



RESTORATION ADVISORY BOARD - A Technical Review Committee (TRC) was established in FY89 and converted to a Restoration Advisory Board (RAB) in FY94. Bedford NWIRP notified TRC members and met with EPA to develop a plan of action for increasing public involvement in the RAB. Two RAB formation meetings were held in FY95. The first RAB formation meeting occurred in April 1995. The second RAB formation meeting was in September 1995. Meetings are now held bi-monthly. The first RAB meeting with the new members is scheduled for January 1996.



COMMUNITY RELATIONS PLAN - A Community Relations Plan (CRP) was completed in February 1989 and updated in May 1992. Another update will be done in the second half of FY96.



INFORMATION REPOSITORY - An Information Repository was established at the Bedford Public Library in FY89 to provide public access to the Administrative Record. A copy of the Administrative Record documents are maintained in the Information Repository.

BEDFORD NWIRP HISTORICAL PROGRESS

FY84

Site 3 - The city of Bedford filed a "John Doe" lawsuit due to contamination from the organic solvent TCE detected in three public drinking water wells in the Hartwell Road Well Field which were installed in March 1983. Even though the Navy was not named in this lawsuit, the Initial Assessment Study (IAS) recommended that 10 monitoring wells be placed around the perimeter of NWIRP Bedford to determine if the facility had any contaminants migrating off-base.

FY86

Sites 1 and 2 - An IAS, equivalent to a Preliminary Assessment (PA), was completed. The study concluded that neither of the sites posed an immediate threat to human health or the environment and recommended no further investigation for the two sites. However, these sites were determined to require further investigation in 1988 and were brought back into the program.

FY88

Sites 1, 2, and 3 - A Remedial Investigation (RI) began.

Site 3 - A lawsuit was filed against the Navy and others as Potentially Responsible Parties (PRPs) for contamination of the Hartwell Road Well Field groundwater, which is the potable water source for Bedford. The contaminants detected included benzene, the organic solvents trichloroethylene (TCE) and tetrachloroethylene (PCE), trans-1,2-dichloroethylene and dissolved iron. This lawsuit was settled out of court in April 1993, with the Navy accepting limited liability. As a result of this suit, a third site was identified at NWIRP Bedford, the Northwestern Groundwater Plume. Because of the lawsuit, Sites 1 and 2 were determined to require further investigation also.

FY90

Sites 1, 2 and 3 - The findings of the Phase I Remedial Investigation/ Feasibility Study (RI/FS) were summarized in a Technical Memorandum (TM). Soil samples revealed ash and heavy metals at Site 1 (Old Incinerator Ash Disposal Areas) and petroleum products at Site 2 (Components Lab Fuel Oil Tank). Groundwater samples revealed chlorinated solvent contamination. The Phase I TM recommended additional assessment of facilities on NWIRP Bedford that are potential contributors of chlorinated hydrocarbons, further soil and surface water sampling, additional shallow and deep monitoring wells, and a soil gas survey to delineate the extent of contamination, locate sources, characterize migration, and to assist in locating additional soil borings and monitoring wells. The soil gas survey findings were reported in a Supplemental Investigation Report. The soil gas data was used to refine the location of RI Phase II soil and surface water sampling and monitoring wells in order to fill outstanding data gaps and to determine regional groundwater characteristics.

FY93

Site 4 (BTEX Fuel Pump Area) - Phase III RI/FS field studies identified a new site. Groundwater is contaminated due to a release of gasoline from an Underground Storage Tank (UST). This site was immediately included in the on-going RI/FS.

PROGRESS DURING FISCAL YEAR 1995

FY95

ALL SITES - The draft final RI Phase II Report was submitted for regulatory review in the first quarter of FY95. The draft Baseline Human Health and Ecological Risk Assessment Work Plan was submitted in the first quarter of FY95 after subsequent revisions from February through June 1995 based on regulatory comments. A Fate and Transport Groundwater Model was initiated in the third quarter of FY95 to support the Risk Assessment and the Groundwater Pump and Treat Remedial Action Contract (RAC) that was awarded in August 1995.

Site 3 - Construction began on a Remedial Action (RA) for the Northwestern Groundwater Plume. Under Massachusetts state law, a Short Term Measure (STM) may be implemented to prevent or eliminate an imminent hazard. The Navy proposed to construct a groundwater containment STM to prevent migration of VOCs north of Elm Brook. Design of a pump and treat system was completed. Additional monitoring wells are included in the design.

PLANS FOR FISCAL YEARS 1996 AND 1997

FY96

ALL SITES - The Phase II RI and Baseline Human Health and Ecological Risk Assessment will be completed in FY96.

Site 3 - Remedial Action (RA) for the Pump and Treat will be completed at the end of FY96.

Sites 1 and 2 - Planned for No Further Action (NFA) RODs, but only after the submission of the RI Phase II and Risk Assessment for both sites. NFA planned given concurrence by the EPA and the Massachusetts Department of Environmental Protection.

Sites 1-4 - Completion of RI/FS is expected; complete Health and Ecological Risk Assessments.

FY97

Site 3 - The pump and treat system is scheduled to begin operation in FY97 and operate until May 2004. A Fate and Transport Groundwater Model will be initiated.

BEDFORD NWIRP PROGRESS AND PLANS

CERCLA	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
PA	4							
SI								
RI/FS			4					
RD				4				
RA					3	1		
IRA								1(1)
RC					1			3
Cumulative Response Complete					25%			100%